

James D. Pauley

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[19]

Pauley et al.

[11] Patent Number: 4,952,913

[45] **Date of Patent:** Aug. 28, 1990

[54] TAG FOR USE WITH PERSONNEL MONITORING SYSTEM

[75] Inventors: James D. Pauley, Estes Park; Allen E. Ripingill, Jr., Louisville, both of Colo.

[73] Assignee: **B. I. Incorporated**, Boulder, Colo.

[21] Appl. No.: 446,212

[22] Filed: Dec. 4, 1989

Related U.S. Application Data

[63] Continuation of Ser. No. 231,823, Aug. 12, 1988, Pat. No. 4,885,571, which is a continuation of Ser. No. 852,831, Apr. 15, 1986, abandoned.

[51] Int. Cl.⁵ G08B 23/00; H04B 1/34

[52] U.S. Cl. 340/573; 340/514;

[58] **Field of Search** 340/572-576,
340/514-516, 539, 825.49; 455/100

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[57] **ABSTRACT**

A tag for use with an individual monitoring system. The tag is worn by an individual being monitored, preferably on the ankle or leg where it can be concealed by the clothing of the individual. The tag is fully self contained and sealed. The circuits of the tag periodically generate an identification signal that includes an identification code. The identification signal modulates a stable RF signal that is transmitted in bursts of data words to a receiver associated with a field monitoring device (FMD) located at the monitoring location. In turn, the FMD may randomly establish communication with a central processing unit (CPU) located at a central monitoring location. Other information is included in the identification code of the tag, such as information indicating that an attempt has been made to remove the tag from the individual. The tag is held in place near the skin of it's wearer by a conductive strap that wraps around the leg or other limb of the individual. Two capacitive electrodes, one of which is realized with the conductive strap, function as the plates of a capacitor, with the body flesh serving as the dielectric material therebetween. By monitoring an alternating signal coupled from one capacitive electrode to the other, a determination can be made as to whether the tag has remained near the body flesh. Further, because the strap is conductive, a signal can be passed therethrough and a determination can be made as to whether the strap has been broken.

11 Claims, 6 Drawing Sheets

